-continued

2 0	2 5

(2) INFORMATION FOR SEQ ID NO:13:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 16 amino acids
        (B) TYPE: amino acid
        (D) TOPOLOGY: unknown

    (i i) MOLECULE TYPE: peptide

    (x i) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Glu Ser Glu Glu Gly Gly Ser Asn Ala Thr Lys Lys Pro Tyr Ile Leu
1   5   10   15

What is claimed is:

1. A substantially pure conotoxin which is highly selective for a specific human receptor, which conotoxin is selected from the group consisting of:

Gly-Xaa-Ser-Phe-Cys-Lys-Ala-Asp-Glu-Lys-Xaa-Cys-Glu-Tyr-His-Ala-Asp-Cys-Cys-Asn-Cys-Cys-Leu-Ser-Gly-Ile-Cys-Ala-Xaa-Ser-Thr-Asn-Trp-Ile-Leu-Pro-Gly-Cys-Ser-Thr-Ser-Ser-Phe-Phe-Lys-Ile (SEQ ID NO:7) wherein Xaa is 4Hyp;

Gly-Cys-Cys-Ser-His-Pro-Ala-Cys-Ser-Gly-Lys-Tyr-Gln-Xaa-Tyr-Cys-Arg-Xaa-Ser (SEQ ID NO:8) wherein Xaa is Gla and the C-terminus is amidated;

His-Xaa-Xaa-Cys-Cys-Leu-Tyr-Gly-Lys-Cys-Arg-Arg-Tyr-Xaa-Gly-Cys-Ser-Ser-Ala-Ser-Cys-Cys-Gln (SEQ ID NO:9) wherein Xaa is 4Hyp;

Cys-Lys-Thr-Tyr-Ser-Lys-Tyr-Cys-Xaa-Ala-Asp-Ser-Xaa-Cys-Cys-Thr-Xaa-Gln-Cys-Val-Arg-Ser-Tyr-Cys-Thr-Leu-Phe (SEQ ID NO:10) wherein Xaa is Gla and the C-terminus is amidated;

Ser-Thr-Ser-Cys-Met-Glu-Ala-Gly-Ser-Tyr-Cys-Gly-Ser-Thr-Thr-Arg-Ile-Cys-Cys-Gly-Tyr-Cys-Ala-Tyr-Phe-Gly-Lys-Lys-Cys-Ile-Asp-Tyr-Pro-Ser-Asn (SEQ ID NO:11);

Gly-Glu-Xaa-Xaa-Val-Ala-Lys-Met-Ala-Ala-Xaa-Leu-Ala-Arg-Xaa-Asn-Ile-Ala-Lys-Gly-Cys-Lys-Val-Asn-Cys-Tyr-Pro (SEQ ID NO:12) wherein Xaa is Gla; and

Glu-Ser-Glu-Glu-Gly-Gly-Ser-Asn-Ala-Thr-Lys-Lys-Pro-Tyr-Ile-Leu (SEQ ID NO:13), wherein Glu in the 1-position is pGlu and the C-terminus is amidated.

2. A conotoxin according to claim 1 having the formula:

Gly-Xaa-Ser-Phe-Cys-Lys-Ala-Asp-Glu-Lys-Xaa-Cys-Glu-Tyr-His-Ala-Asp-Cys-Cys-Asn-Cys-Cys-Leu-Ser-

Gly-Ile-Cys-Ala-Xaa-Ser-Thr-Asn-Trp-Ile-Leu-Pro-
Gly-Cys-Ser-Thr-Ser-Ser-Phe-Phe-Lys-Ile (SEQ ID
NO:7) wherein Xaa is 4Hyp.

3. A conotoxin according to claim 1 having the formula:

Gly-Cys-Cys-Ser-His-Pro-Ala-Cys-Ser-Gly-Lys-Tyr-
Gln-Xaa-Tyr-Cys-Arg-Xaa-Ser (SEQ ID NO:8)
wherein Xaa is Gla and the C-terminus is amidated.

4. A conotoxin according to claim 1 having the formula:

His-Xaa-Xaa-Cys-Cys-Leu-Tyr-Gly-Lys-Cys-Arg-Arg-
Tyr-Xaa-Gly-Cys-Ser-Ser-Ala-Ser-Cys-Cys-Gln (SEQ
ID NO:9) wherein Xaa is 4Hyp.

5. A conotoxin according to claim 1 having the formula:

Cys-Lys-Thr-Tyr-Ser-Lys-Tyr-Cys-Xaa-Ala-Asp-Ser-
Xaa-Cys-Cys-Thr-Xaa-Gln-Cys-Val-Arg-Ser-Tyr-Cys-
Thr-Leu-Phe (SEQ ID NO:10) wherein Xaa is Gla and
the C-terminus is amidated.

6. A conotoxin according to claim 1 having the formula:

S r-Thr-Ser-Cys-Met-Glu-Ala-Gly-Ser-Tyr-Cys-Gly-
Ser-Thr-Thr-Arg-Ile-Cys-Cys-Gly-Tyr-Cys-Ala-Tyr-
Phe-Gly-Lys-Lys-Cys-Ile-Asp-Tyr-Pro-Ser-Asn (SEQ
ID NO:11).

7. A conotoxin according to claim 1 having the formula:

Gly-Glu-Xaa-Xaa-Val-Ala-Lys-Met-Ala-Ala-Xaa-Leu-
Ala-Arg-Xaa-Asn-Ile-Ala-Lys-Gly-Cys-Lys-Val-Asn-
Cys-Tyr-Pro (SEQ ID NO:12) wherein Xaa is Gla.

8. A conotoxin according to claim 1 having the formula:

Glu-Ser-Glu-Glu-Gly-Gly-Ser-Asn-Ala-Thr-Lys-Lys-
Pro-Tyr-Ile-Leu (SEQ ID NO:13), wherein Glu in the
1-position is pGlu and the C-terminus is amidated.

*   *   *   *   *

9. The conotoxin according to claim 8
    wherein the Thr residue is glycosylated.